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Major groups priorities for action in energy for sustainable development, industrial development, air pollution/ atmosphere and climate change**

Note by the Secretariat

1. The Johannesburg Plan of Implementation adopted at the World Summit on Sustainable Development[1] and the decisions of the eleventh session of the Commission on Sustainable Development[2] called for strengthened involvement and enhanced participation of major groups in the activities of the Commission and in the implementation of Agenda 21,[3] the Programme for the Further Implementation of Agenda 21[4] and the Johannesburg Plan.

2. The Bureau of the fifteenth session of the Commission on Sustainable Development decided to continue to build on the participatory practices of previous sessions of the Commission and of the World Summit on Sustainable Development[5] by inviting major groups to contribute their written views as a basis for participation in multi-stakeholder dialogues and interactive discussions at the fifteenth session of the Commission.

3. The organization of the input and contributions of major groups to the fifteenth session of the Commission was inspired by practices used at past sessions through a self-selected multi-stakeholder steering group composed of organizing partners from network organizations representing the nine major groups.[6] The organizing partners are: the Women Environment and Development Organization and ENERGIA, the International Network on Gender and Sustainable Energy, for women; the Youth Caucus of the Commission on Sustainable Development, for youth and children; the Indigenous Peoples' Caucus of the Commission on Sustainable Development, the Indigenous Peoples' International Centre for Policy Research and Education and the

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Indigenous Environmental Network, for indigenous people; the Sustainable Development Issues Network (through the Northern Alliance for Sustainability, Third World Network and the Environment Liaison Centre International), for non-governmental organizations; the International Council for Local Environmental Initiatives — Local Governments for Sustainability, for local authorities; the International Confederation of Free Trade Unions (through the Trade Union Advisory Committee to the Organization for Economic Cooperation and Development), for workers and trade unions; the International Chamber of Commerce and the World Business Council for Sustainable Development, for business and industry; the International Council for Science and the World Federation of Engineering Organizations, for the scientific and technological community; and the International Federation of Agricultural Producers, for farmers. These organizing partners facilitated the preparation of the major groups' priorities for action in energy for sustainable development, industrial development, air pollution/atmosphere and climate change, which are contained in the annex to the present note.

4. The document outlines the contributions of major groups to the discussions on policy options and possible actions to expedite implementation. It builds on the discussion papers prepared by major groups for the fourteenth session of the Commission, which presented their overall views on the status of implementation of commitments related to the thematic issues on the agenda, including reference to cross-sectoral themes, successes and challenges of implementation and practical contributions.[7] The document presents various policy opinions and proposed solutions for the consideration of policymakers in their deliberations, and will serve as a starting point for the participation of major groups in the intergovernmental preparatory meeting and at the fifteenth session of the Commission. While major groups differ in the identification of needs to be filled and possible synergies that may be adopted, they concur on a number of issues, including on the essential role they play as real partners in support of common efforts for sustainable development.

Notes

[1] *Report of the World Summit on Sustainable Development, Johannesburg, South Africa, 26 August-4 September 2002* (United Nations publication, Sales No. E.03.II.A.1 and corrigendum), chap. I, resolution 2, annex.

[2] *Official Records of the Economic and Social Council, 2003, Supplement No. 9* (E/2003/29).

[3] *Report of the United Nations Conference on Environment and Development, Rio de Janeiro, 3-14 June 1992* (United Nations publication, Sales No. E.93.I.8 and corrigenda), vol. I, *Resolutions adopted by the Conference*, resolution 1, annex II.

[4] General Assembly resolution S-19/2, annex.

[5] The multi-stakeholder participation in the sessions of the Commission became a standard part of its work programme at its sixth session through the launch of the dialogue segment in response to General Assembly resolution S-19/2, recommending that the Commission strengthen its interaction with representatives of major groups, inter alia, through greater and better use of focused dialogue sessions. The dialogue segments launched in 1998 have been recognized as a unique participatory model for effectively engaging major groups and Governments in a genuine dialogue on specific sustainable development issues.

[c] Section 3 of Agenda 21 defines major groups as comprising women, children and youth, indigenous people, non-governmental organizations, local authorities, workers and trade unions, business and industry, the scientific and technological community, and farmers.

[d] The major groups discussion papers for the fourteenth session of the Commission on Sustainable Development are contained in E/CN.17/2006/5 and E/CN.17/2006/5/Add.1-9, and are available on the Internet at: http://www.un.org/esa/sustdev/documents/docs_sdissues_majorgroups.htm#CSD-14.

Annex

Major groups priorities for action in energy for sustainable development, industrial development, air pollution/ atmosphere and climate change

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I. Women

Integrating a gender perspective into energy planning, decision-making, management and implementation

1. Energy policies, legislation and programmes should recognize that women and men have different social and economic roles and should place more emphasis on domestic uses and small-scale agricultural and informal income-generating activities where women predominate.

2. Gender mainstreaming approaches should be used to ensure that the concerns of both men and women are considered in planning and policymaking. Government officials should receive training on how to integrate gender issues into their work.

3. Disaggregated data should be used by Governments to identify and quantify the different energy needs of women and men, to design and implement policies and programmes and to evaluate results.

4. Gender audits and needs assessments should be used to ensure that energy policies focus less on supply targets and more on demand-side considerations in order to better reflect the needs of women and poor households, and also to help integrate energy actions with national poverty reduction plans and development initiatives on health, education, agriculture and job creation.

5. Gender budgeting should be applied to public energy expenditures and investment programmes in order to make the targeting of policies and resources more equitable.

Enhancing the roles and status of women as participants and agents of change

6. Since energy ministries and institutions are generally male-dominated, governments should adopt affirmative action programmes to ensure that a higher number of qualified women are trained and hired for policymaking positions.

7. Participatory processes should be used to actively involve women in the design, selection, promotion and use of energy resources and technologies.

8. Training programmes should encourage women to become energy technicians and producers through the inclusion of instruction on the operation and maintenance of machinery and other technical and business skills.

9. Given the gender imbalances in its Bureau, panels and delegations, the Commission on Sustainable Development should prioritize increasing the participation and representation of women.

Providing access for all to reliable, affordable energy services

10. Without modern energy services, women and girls must gather fuel and carry water for household needs and cook over smoky indoor fires. Increased investments in basic energy infrastructure are needed to reduce women's burdens and meet the Millennium Development Goals, particularly in developing countries and countries in transition. Governments should address women's access to energy in poverty reduction strategy papers and national sustainable development plans.

11. Increased access to energy for women should be coupled with employment and enterprise development opportunities, since most poor women in developing

countries cannot afford to pay for new equipment unless it can be used to generate income or reduce fuel costs.

12. Improved energy financing options should be made available to women for income-generating activities, since women face particular constraints in obtaining bank credit or owning land and assets that could be used for collateral.

Improving health by reducing indoor air pollution from traditional fuel use

13. Governments should focus on expanding access to cleaner burning and more efficient cooking fuels (such as liquified petroleum gas, kerosene, butane and natural gas), especially in small containers that women can afford to purchase and carry, and should explore investments in local production of biofuels for use in meeting the energy needs of the poor in an environmentally friendly way. Governments should commit themselves to halving by 2015 the percentage of people who cook with traditional biomass fuels.

14. Indoor air pollution should be reduced through cleaner-burning stoves and solar cookers and hot water heaters, as well as vents, windows, stove hoods and chimneys for better ventilation.

Taking action on climate change and ensuring gender-sensitivity in related policies and programmes

15. Since global warming will disproportionately affect poor women, Governments and institutions should conduct gender-impact analyses to identify gender-specific needs and protection measures related to floods, drought and other disasters. Information is also needed on the connection between gender-based patterns of resource use and environmental impacts, such as deforestation, owing to inappropriate agricultural practices or weak tenure rights.

16. Women play a critical role in mitigating and adapting to environmental changes. Governments and institutions at all levels should involve women in climate change decision-making and take advantage of their particular skills in natural resource management and conflict prevention.

17. Without secure access to and control over natural resources, women are less able to cope with climate change. Thus, as part of their climate change activities, Governments and institutions should work closely with women's organizations to improve women's access to resources.

18. Governments should work to ensure international cooperation and joint action on implementation of the United Nations Framework Convention on Climate Change and the Kyoto Protocol. Developed countries that are the major sources of greenhouse gas emissions should take the lead, and non-binding agreements should be discouraged.

Ensuring accountability for sustainable industrial development

19. Developed countries currently have the most unsustainable consumption and production rates and should use awareness campaigns, legal requirements and economic incentives to promote renewable energy and energy efficiency.

20. Rather than depending on private sector involvement and market-driven approaches, the Commission on Sustainable Development and Governments should

adopt rights-based strategies designed to directly benefit those most affected by energy poverty and the impacts of climate change.

Alternative energy sources that do not endanger the environment or health

21. Governments and other institutions should promote investment in and raise awareness about alternative energy technologies that are readily available and have tremendous potential for supporting economic development with low greenhouse gas emissions. Appropriate alternative energy technologies include wind and solar-powered systems, small hydroelectric generators, modern biofuel systems and energy efficiency mechanisms.

22. Governments should work towards reducing reliance on fossil fuels. In addition to contributing to global warming, the combustion of fossil fuels produces air pollution that has a negative impact on human health, particularly in poor and disadvantaged communities. The extraction and transportation of coal and oil also have a negative impact on communities by destroying land and degrading water resources.

23. Given the wide-reaching and dangerous impact of nuclear accidents and radioactive nuclear wastes, environmental degradation due to uranium mining and health risks from nuclear energy, the Commission on Sustainable Development and Governments should work to ensure that nuclear energy sources are phased out.

II. Children and youth

A. Introduction

24. Children and youth do not wish to inherit a toxic, radioactive, dirty, carbon-driven world. We call on the Commission and all concerned stakeholders to take action to ensure that we will see a truly sustainable future. We need a clear definition of sustainable energy and clear, time-bound targets for the implementation of a sustainable energy policy that frees us from air pollution, climate change and a radioactive legacy.

25. Youth and children stand in solidarity with vulnerable communities, which suffer a disproportionate impact of air pollution and climate change, including low-income people, marginalized groups, indigenous peoples and those living in geographically vulnerable areas.

B. Energy

26. The relationship between affordable energy access and poverty reduction must be addressed. Achievement of the Millennium Development Goals will require innovative strategies to improve energy access for the poor. Increased production alone does not guarantee access to energy for the impoverished.

Renewable energy

27. Renewable energy is the key to a sustainable future. A holistic strategy is needed for continued research and development and the full implementation of existing technologies.

28. Small-scale hydro, wind, biomass and solar energy projects offer a sustainable solution to energy access, providing local, context-sensitive solutions that preserve the environment. Youth have been essential partners in implementing small-scale projects; such contributions need further support.

Energy efficiency

29. Global energy savings can be generated by improving how energy is used. Youth-led, peer-to-peer campaigns that advance responsible consumption and sustainable lifestyles should be supported.

Sustainable energy

30. A clear, universally recognized definition of sustainable energy must be agreed on, which must take into consideration, as stated in the Johannesburg Plan of Implementation, the reliability, affordability, economic viability, social acceptability, and environmental soundness of energy services and sources. It is self-evident to youth that nuclear energy utterly fails this test. Likewise, so-called "clean" fossil fuels are not viable options for truly sustainable development.

Transcending unsustainable energy

31. Subsidies supporting the exploitation of and dependence on fossil fuels and nuclear energy must be phased out. The market distortions caused by such subsidies continue to prevent renewable energy from being competitive.

Financing energy for sustainable development

32. Investment must be made in renewable energy and energy efficiency. Policies should create markets for renewable energy, reduce risk, provide acceptable rates of return for renewable energy and energy efficiency for small and medium-sized enterprises, and finance the gaps in research and development and the commercialization of clean, renewable energy.

C. Climate change

33. Global climate change is the most pressing issue of our generation. Successful measures to mitigate and adapt to climate change demand innovative policy solutions encompassing multiple sectors, global consensus and cooperation beyond short-term political manoeuvring, and immediate action to curb and reverse the harmful trends that contribute to climate change.

34. Given the changes that we already occurring and projections for the coming decades, adaptation by way of environmental, social and economic adjustment is essential to mitigating the most dire impacts of climate change. Particularly important are the needs of rural and urban coastal communities and small island

developing States, as well as research addressing the relationships among the international food supply, food security, and climate change.

35. Developing nations are rapidly becoming major contributors to climate change. Providing access to environment-friendly technologies through leapfrogging is vital to ensuring that developing countries are involved in combating climate change.

36. Efforts to reach a post-2012 climate regime must be strengthened. As stated in the International Youth Declaration adopted at the eleventh session of the Conference of the Parties to the Climate Change Convention held from 28 November to 9 December 2005 in Montreal, Canada, we demand minimum binding emissions reduction targets of 30 per cent by 2020 and 80 per cent by 2050 for developed nations. The Commission on Sustainable Development can foster the deployment of renewable energy and provide recommendations that will promote the realization of those targets.

37. Carbon capture and storage methods are an interim solution to mitigating climate change. *Ex ante* strategies, such as the development and use of clean, renewable energy, are the priority for sustainable development.

38. Solutions to climate change must be consistent with principles of environment justice.

D. Industrial development

39. In order to set the right environment for fair and sustainable industrial development, national development strategies should be used to provide an enabling framework for business and industry to operate responsibly. Public-private partnerships are essential but cannot be relied upon as the only viable strategy. Children and youth strongly believe that corporate social responsibility and accountability must be emphasized; while the Johannesburg Plan of Implementation highlighted this need, it was not mentioned at the fourteenth session of the Commission.

40. The environmental implications of development should be adequately addressed. Governments must consider the fundamental importance of the environment in providing basic human services and take meaningful steps to stop and reverse degradation.

41. Cleaner production should be matched with sustainable consumption. Fundamental changes in the way societies produce and consume are necessary to achieve global sustainable development. As stated in the Johannesburg Plan of Implementation all countries should promote sustainable consumption and production patterns.

42. The global community should be educated on sustainable development. Youth worldwide are advancing sustainable procurement policies and environmental education programmes designed to raise awareness and promote individual empowerment. These efforts must be supported.

E. Air pollution

Action needed for healthy air

43. Children and youth have actively engaged in education programmes to address issues related to air pollution; their efforts need to be strengthened with the support of Governments.

Regional action to reduce air pollution

44. Nations with similarities of geographic location, developmental stages and air pollution problems will be better able to address air pollution issues together. By addressing those concerns on a regional basis, concerted efforts can be carried out to better deal with larger issues.

45. The actual costs of unsustainable transportation should be internalized. Vehicle emissions are one of the largest sources of air pollution. Fiscal policy should be used to promote public transportation, fuel efficiency, high-occupancy car pooling and car-sharing cooperative initiatives.

F. Cross-cutting issues

46. Measurable targets and timelines are required. While the achievement of targets necessitates cooperation among all stakeholders, government accountability must also be stressed.

47. The United Nations Decade of Education for Sustainable Development (2005-2014) should be ambitiously promoted through Governments, civil society and the private sector. The United Nations Decade of Education for Sustainable Development is a prime opportunity to integrate sustainable development tenets and practices on a global scale. Given its potential for change, youth insist that the United Nations Decade of Education for Sustainable Development be heavily emphasized at the fifteenth session of the Commission.

48. The inclusion of youth delegates in the international decision-making process should be facilitated. Governments must fulfil their commitment to include representation of youth (see resolution 60/2).

III. Indigenous people[a]

49. Indigenous peoples have significant contributions to make in policy development and implementation of solutions to energy and sustainable development, industrial development, air and atmosphere pollution and climate change. Indigenous peoples are not only vulnerable to disproportionate impacts resulting from these processes, but are also producers of solutions.

[a] The Indigenous Peoples' Priorities for Action at the fifteenth session of the Commission on Sustainable Development was prepared by the African Indigenous Women Network/Indigenous Information Network, the Indigenous Environmental Network, the Indigenous Peoples' International Centre for Policy Research and Education, the International Indian Treaty Council, Tewa Women United, the Netherlands Centre for Indigenous Peoples and Tuvanuatu Komiuniti.

50. There is emerging congruence today between traditional knowledge and modern scientific understanding about the challenges and ways forward to achieve sustainable development. The current extraction of materials, the production of waste and levels of consumption by modern societies is not sustainable, requiring a transition to low-carbon economies implementation of programmes for energy conservation and efficiency, and initiatives to address consumption issues.

51. Most human experiences and achievements have taken place in societies where little oil, gas or coal is used. It is the world's rich elite minority that has grown most dependent on fossil carbon; and only in relatively recent times. This addiction can be addressed and overcome by equity in decision-making, through social and technological innovations and the practice of ecological values, such as precaution and care for the Earth.

52. The Commission at its fifteenth session must demonstrate a model for leadership and inclusive governance on these thematic issues, underpinned by social and ecological balance and justice. Good governance comprises robust policy and regulatory frameworks, full corporate accountability for social and environmental impacts, participatory decision-making that values the central contributions of all major groups and respect for human rights.

53. In 2006, the United Nations took a major step forward in the implementation of chapter 26 of Agenda 21 when the Human Rights Council approved the United Nations Declaration on the Rights of Indigenous Peoples as the minimum standards to be applied to secure indigenous peoples' rights and well-being. The Commission must uphold indigenous peoples' recognized rights to self-determination and sustainable development; to control over their lands, territories and resources; to practice their culture and customary laws; and to their free, prior and informed consent to all policies, programmes and projects that affect them.

54. Any partnership with indigenous peoples on energy and sustainable development, industrial development, air and atmospheric pollution and climate change must be based on respect for indigenous peoples' own identity. Their territories are not extractive reserves for outmoded carbon-intensive technologies. In this view, the start-up capital for development is the cultural and social assets of indigenous peoples, catalysed by the addition of newly understood mechanisms, technologies and resources.

55. The Commission must take action to enhance research and development on approaches and technologies to address multiple impacts and objectives in the thematic cluster. There must be a review and development of disaggregated data and indicators on indigenous peoples. This must be done in full partnership with indigenous peoples at all stages.

Industrial development/atmosphere/air pollution

56. The Commission must promote:

(a) Green chemistry — the design of natural chemical products and processes that reduce or eliminate the use and generation of hazardous substances;

(b) Green engineering — the development and commercialization of decentralized industrial processes that are economically feasible and reduce risks to human health and the environment;

(c) Zero waste — the maximizing of existing recycling and reuse efforts, while ensuring that products are designed with respect for nature and the environment and have the potential to be repaired, reused, or recycled;

(d) Clean production — the continuous application and evaluation of precaution, prevention, democracy and producer responsibility for impacts caused by production processes and products.

Energy for sustainable development

57. The Commission must support:

(a) The development and implementation of real, verifiable reductions moving towards the elimination of fossil fuel emissions;

(b) The acceleration by Governments of the co-development, dissemination and deployment of community-based affordable and cleaner energy efficiency and energy conservation technologies. Indigenous peoples from developing and developed countries are promoting the use of renewable energy sources to meet the energy needs of their local communities and explore the potential to be alternative-minded energy providers;

(c) The phasing out of nuclear energy and the shift of subsidies to the research, production and dissemination of clean, renewable energy technologies. Nuclear energy is not clean and renewable. The negative legacy of radiation impacts needs to be investigated and reparations made to affected communities;

(d) International mechanisms utilizing indigenous knowledge to support capacity-building, financial mechanisms and technology transfer to and from indigenous peoples to pursue alternative clean energy development;

(e) Implementation of recommendations of the World Commission on Dams into domestic energy planning processes, including addressing the legacy of the social and environmental impacts caused by large dams and reparations for affected communities.

Climate change

58. The Commission must recognize that:

(a) Any climate change solutions cannot and should not be separated from issues of social and environmental justice. Economic super-Powers have been as successful today in their disproportionate occupation of the atmosphere with carbon emissions as they were in their colonial occupation of land. Global inequality in the form of an industrialized minority has been overusing the Earth's ability to cleanse the atmosphere of excess carbon and other greenhouse gases;

(b) The slowing down of climate change requires slowing down and halting of extraction of fossil fuels and the expanding release of carbon into the atmosphere. Social movements and indigenous communities fighting for the maintenance of customary land use are also addressing the problems of climate-destabilizing land clearance, fossil fuel extraction, commercial logging, high-input intensive agriculture and long-distance food transport;

(c) Current carbon-trading policies, in practice, favour the further exploitation of those fuels. Furthermore, new tree plantations, which are claimed to

be a means of mitigating the consequences of increased carbon dioxide pollution, often drive people out of their traditional living grounds and destroy biological diversity;

(d) Indigenous peoples' full and effective participation in climate impact assessments should take into account indigenous knowledge systems, culture, social values, language, spirituality and ecosystems;

(e) Technocratic climate management regimes must be transformed to promote accountability, transparency and democratic debate and indigenous and local community participation in climate solutions;

(f) The implementation and promotion of models for indigenous and State partnerships, such as the Arctic Council, that incorporate ecosystem approaches, collaboration between traditional and scientific knowledge and local, national and regional implementation plans as well as genuine partnership between States and indigenous peoples, should become a model for common practice. Such partnership models can be replicated to address environmental and climate problems facing, islands, drylands and forest and mountain ecosystems.

IV. Non-governmental organizations

New paradigm

59. Owing to the unabated global reliance on fossil fuels and unsustainable patterns of consumption and production, progress in promoting sustainable development will be rendered impossible within the four themes of the current cycle of the Commission on Sustainable Development: energy for sustainable development, climate change, atmospheric pollution and industrial development. The combustion of fossil fuels is a key driver for climate change and atmospheric pollution. Reliance on fossil fuel is also causing increased external indebtedness for the least developed countries. Lack of access to decentralized modern energy services and lack of support for renewables are key obstacles to just and sustainable development, including industrial development.

60. Based on the precautionary principle, in order to promote sustainable development, safeguard the environment and promote social equity, the following steps are necessary:

In energy for sustainable development

61. In order to achieve real sustainable development, a just transition must be made from fossil fuels and nuclear energy towards accessible and affordable energy alternatives, including energy efficiency and energy savings.

62. An equitable and just access to energy services must be developed in order to fulfil basic needs and develop energy policies with time-bound targets and commitments, as an integrated element of poverty reduction strategy papers and/or national strategies for sustainable development, that focus on the poor to ensure greatest impacts and institutionalize citizen involvement to meet the needs of society and business in a sustainable fashion.

63. A transfer must be made of existing and new energy technologies, excluding harmful nuclear ones, to those countries in need, while respecting and/or strengthening local and regional capacities and culture.

64. There must be an immediate shift in energy funding and investment to phasing out subsidies to fossil fuel and nuclear industries in order to level the playing field. Such subsidies dramatically hamper sustainable development and therefore should be redirected to renewable energy and energy efficient funding, including access to energy for the poor.

65. A comprehensive strategy on finance must be developed by redirecting international financial institutions and their funds to sustainable energy, including the introduction of strengthened microfinancing for new renewables and energy efficiency.

66. Those export credit agencies that fund the promotion of fossil, nuclear and hydroenergy production that does not, inter alia, comply with the recommendations of the World Commission on Dams should be identified and support for them phased out by 2008. All international financial institutions should be instructed to do likewise.

67. The development of nuclear facilities must be halted as they are neither safe nor environmentally and economically sound and sustainable.

68. Sustainability criteria must be set for energy production and consumption, including the use of bioenergy, in order to avoid negative effects on food security, livelihood, biodiversity and to close the widening of the gap between the haves and have-nots.

In industrial development

69. It must be emphasized that industrial development does not automatically lead to sustainable development and poverty reduction, but that standards of sustainable production and consumption must be the basis upon which all industries are based. They must be set within the limits of the Earth's carrying capacity, sharing equitably the burdens of the ecological footprint and internalizing the external costs, respecting the principle of "the polluter pays".

70. Sustainability reporting within the private sector must be stimulated by developing clear indicators to monitor and guide sustainable industrial development. All large enterprises should utilize principles of corporate responsibility and accountability to ensure open communication and transparency and with respect to ownership and decision-making.

71. Short production and consumption chains must be developed in order to avoid unnecessary transport, with added value to the manufacturer.

72. The Millennium Development Goals and the goals of the Johannesburg Plan of Implementation must be implemented by ensuring that benefits from industrial development in the South remain in the South and by avoiding negative consequences, such as pollution, waste dumping, low salaries and bad working conditions, at all costs. Industrial development in richer countries cannot be based on the exploitation of poorer ones.

In air pollution and atmosphere

73. Clean public transport alternatives must be promoted. Vehicles, particularly those driven by diesel engines, are the main cause of urban air pollution. Cities that have taken decisive steps to curb transport-related air pollution have introduced innovative measures, such as mandatory replacement of diesel with compressed natural gas or congestion fees and public transport alternatives.

74. An indoor clean air, health/environment policy must be developed. Such policies must include access to cooking and heating facilities that are affordable, cleaner and environmentally friendly, such as efficient, smokeless and cleaner burning biomass stoves, biogas and solar cookers. Policies should include the promotion of simple technologies to allow for greater ventilation of smoke from indoor fires. Environmental and social impact assessments should also be used when promoting such technologies.

75. Adequate technology to curb the incineration of garbage from local heaps and national landfills must be made available and the incineration of garbage that emits toxic fumes must be legally banned.

In climate change

76. All countries that are signatories to the Kyoto Protocol must be held accountable to their commitments and not allow non-signatories to direct progress. It is essential to promote the early benefits implicit in the Protocol concerning the transformation of global energy systems in areas such as the generation of employment, market opportunities, reduced emissions and greater energy self-reliance.

77. The climate must be stabilized by keeping man-made climate change well below 2 degrees Celsius as a global average. Hence, no country can claim post-2012 Kyoto negotiation privileges, but allocation of emission rights should be based on equitable principles. Action is needed immediately to reduce emissions of greenhouse gases while simultaneously meeting the demands of the Millennium Development Goals.

78. The most vulnerable and poor communities must receive support in their efforts to adapt to climate change.

79. The transfer of costs for mitigation to developing countries must be prevented through the Clean Development Mechanism, and the development of socially and environmentally sound clean development mechanism projects that respect the "gold standard" must be supported.

In interlinkages

80. Good governance, including respect for social justice, human rights, gender equality, democratic institutions and sustainable policies, must be achieved.

81. The financial instruments of Governments must be made more effective in promoting sustainable policies through, inter alia, the implementation of environmental fiscal reforms as suggested by the Organization for Economic Cooperation and Development in its guidelines.

82. System-wide coherence (within and outside the United Nations system) must be improved, and compatibility within international institutions in line with Agenda 21 and the Johannesburg Plan of Implementation must be achieved.

83. Education for sustainable development must be included in all curricula, as sustainable development is not possible without the awareness and contribution of current and future generations.

V. Local authorities

84. Local authorities continue to demonstrate leadership and commitment to the achievement of local sustainable development. Cities, now home to more than half the world's population, have the power to affect the main sources of air pollution and greenhouse gases, namely energy use, transportation and waste.

85. Local authorities are instrumental in the achievement of national priorities on all of the thematic areas and, in particular, on air pollution/atmosphere and climate change. In fact, municipal leaders have the extraordinary ability to change the current trend of climate change through local policies and actions that will meet or exceed targets set by subnational and national Governments.

86. If effectively harnessed and supported, city-led actions can positively shift the current path of climate change. Local authorities continue to prove that local action moves the world.

Challenges

87. Local authorities recognize the impacts of climate change as threats to public health, security and local economies. Politics and science are no longer barriers to local authorities, taking action on climate change — rather, resources and capacity are.

88. Local authorities lack the financial capacity to integrate long-term sustainable development goals into the planning and development of infrastructure and municipal services.

89. The long-term nature of the challenges of climate change and sustainable development defies the limited political mandate of most local authorities. To properly incorporate sustainable development at the local level, new concepts and practices must be institutionalized and transcend staff turnover.

90. Local authorities bear a large economic burden from dependence on the automobile. As motor vehicle revenues tend to cover less than half of the cost of infrastructure, maintenance and services, local authorities usually subsidize the shortfall.

91. Local authorities have no legislative authority over vehicle efficiency policies, as these are traditionally established at the national level, which has a negative impact on local air quality.

Strategies/programmes

92. Local authorities have demonstrated that climate change policies are a path to economic opportunity. Local authorities need to have the opportunity in national and

international forums to bury the myth of economic harm and eventually lead and influence national and international policymaking.

93. The international community needs to provide additional budgetary and technical support for local authorities and incentive-based funding to promote energy efficiency and sustainable procurement. It must also adopt integrated planning and risk-management techniques to respond more effectively, especially in the least developed countries and those that are industrializing rapidly.

94. Local authorities should have access to financial support and incentives for policies such as clean energy production.

Capacity-building

95. Successful programmes, such as the Cities for Climate Protection Campaign of the International Council for Local Environmental Initiatives (ICLEI), the ICLEI Local Governments for Sustainability, which is working with over 680 local authorities on climate change, the ICLEI Resilient Cities and Communities partnership programme, which focuses on adaptation, and others, especially those that promote North-South and South-South exchanges between local governments and communities — should be supported and promoted. The local authorities participating in the Cities for Climate Protection Campaign together account for about 15 per cent of global anthropogenic carbon dioxide emissions.

96. Through sustainable procurement activities, local authorities can help stimulate sustainable production. The buying power of local authorities can accelerate the application and accessibility of clean technologies in the marketplace, including renewable energy options.

97. National legislation should provide sufficient local autonomy to meet local development and national targets, thereby enabling effective decentralization.

98. Local authorities need to be fully engaged when strategic decisions on sustainable development and climate change are made.

Specific actions

99. Microgeneration and decentralized energy production should be promoted by effectively planning for and promoting local energy production.

100. Local authorities should have the opportunity to participate in emissions trading in accordance with evolving domestic and international trading systems.

101. Local authorities, especially those in developing countries, should have access to the special fund established by the United Nations Framework Convention on Climate Change to finance the implementation of adaptation activities.

102. Improvements need to be made to national vehicle efficiency standards and investments made in alternative fuels and vehicles.

103. It is essential to decentralize both regulatory powers (those with the authority to enforce local guidelines and policies and to create revenue through taxation and fees) and resources (financing and technical, management and governance capacity).

VI. Workers and trade unions

104. At its fourteenth session, the Commission on Sustainable Development raised important trade union concerns, for example, worker participation, training and education, occupational health and safety, and labour standards of the International Labour Organization.

105. The policy options of the Commission during its fifteenth session should include the following proposals from its fourteenth session:

(a) Measures to promote employment through pollution abatement, industry planning, transportation, energy efficiency and access;

(b) Skills training and education for workers, with a focus on social and environmental considerations, sustainable consumption, production through technological innovation and resource efficiency;

(c) Recognition and promotion of worker participation.

106. However, at its fourteenth session, the Commission did not address the consequences of privatizations and full cost recovery practices. For energy to become a driver for sustainable development, measures should be taken to ensure that public services are transparent, locally driven, accountable and participatory.

Energy for sustainable development

Challenge 1
Provide sustainable energy for all

107. **New roles for public utilities must be upgraded and defined** in order to improve access by poor and vulnerable groups.

108. **The promotion of privatization must be stopped**. International and regional financing institutions must eliminate the privatization of public services from their loan conditionalities. Vital public services must be excluded from discussions on the General Agreement on Trade in Services as they cannot be considered as commodities.

109. **Compensation polities must be promoted** in order to address the negative distributional effects of private financing of services, for example, fees, special levies and other financial instruments.

110. **Governance requirements should be incorporated into energy policies**. Energy management and delivery must be locally driven, transparent, accountable and participatory, and must respect local laws and politics and not undermine international social or environmental standards.

111. **Partnerships among and with public utilities should be promoted**. Initiatives in place have improved management and delivery of public services.

Challenge 2
Promote energy efficiency

112. **Energy efficiency requirements should be put in place through urban planning and industrial design**, for example, by developing efficient buildings and

heating systems, upgrading existing buildings (insulation of walls and roofs with rockwool or glass wool, changing windows, putting thermostats on all forms of space heating) and ensuring that old asbestos is dealt with properly and that new asbestos is not introduced at all.

113. **Joint trade union-employer approaches** to target setting, monitoring, reporting and making change through workplace assessment and audit models should be encouraged.

114. **Energy saving through demand side management should be implemented**, with an increased use of collective transportation and the development of energy services, such as relighting and retrofitting in housing.

115. **Synergy should be coordinated with the challenges** presented in the reduction of air pollution (see paras. 134-138 below).

Challenge 3
Capture employment potentials of the shift towards sustainable energy

116. **There should be investment in a mix of clean, green and sustainable energy sources**, including wind, solar and some forms of biomass energy, wave energy, microhydroenergy and, especially for transitional purposes, in clean coal, advanced technology vehicles and natural gas.

117. **The employment potential of new technologies, renewable energies and conservation activities should be captured**. In the United States of America alone, renewables could create nearly 500,000 jobs, while investing in a progressive energy policy could yield over 3.3 million jobs.[b]

118. **Employment transition strategies to address job losses in energy intensive sectors should be developed** through compensation, retraining and social support.

Challenge 4
Mobilize financial resources for social and environmentally friendly energy

119. **A mix of incentives and regulatory obligations should be provided** in order to reorient foreign direct investment and other investment flows towards clean and efficient energy sources.

120. **The borrowing power of local authorities should be enhanced** through planning of debt burdens and legislative frameworks for improved decision-making. Domestic financing should be encouraged over unstable foreign capital.

Challenge 5
Enhance the role of partnerships

121. **There must be a call for accountability and more stringent evaluation of existing and future partnerships for sustainable development** through democratic decision-making and transparent implementation.

[b] Daniel M. Kammen, Kamal Kapadia and Matthias Fripp, "Putting renewables to work: how many jobs can the clean energy industry generate?" *Report of the Renewable and Appropriate Energy Laboratory*, University of California, Berkeley (2004).

Industrial development

Challenge 6
Orient industrial development towards poverty eradication

122. **Decent employment, the creation of jobs and the upgrading of skills should be promoted** as a means to poverty eradication, social equity and sustainable development.

123. **Good industrial relations should be fostered** with full recognition and respect of the conventions safeguarded by the ILO Declaration on Fundamental Principles and Rights at Work, which already binds most Governments.

124. **Linkages among United Nations bodies should be promoted** and taken advantage of, for example, instruments and measures for environment and social policy of the International Labour Organization (ILO) and the United Nations Environment Programme and programmes of the World Health Organization (WHO) and ILO relating to social equity and public, environmental and occupational health.

Challenge 7
Make industrial development and environmental protection mutually reinforcing

125. **False choices that pit industrial development against environmental and social protection must be dismissed** and made self-reinforcing instead.

126. **Interregional learning exchanges** for increasing the use of clean, efficient and modern technologies should be promoted.

127. **Clear goals should be set for country adoption of the United Nations GHS chemical classification and labelling**. The ratification of instruments that pertain to chemicals and chemical safety should be promoted, and a global ban of asbestos should be worked on with ILO and WHO.

128. **The further evolution of trade union-employer agreements should be promoted**, including collective and framework agreements to advance jointly on social and environmental policies.

129. **The OECD Guidelines for Multinational Enterprises and the ILO tripartite declaration on Multinational Enterprises and social policy should be promoted**.

Challenge 8
Reinforce sustainable natural resource management in industrial policies

130. **A shift should be promoted from global market resource depletion patterns** towards regional/subregional/local production and trade so as to avoid external dependency and negative environmental impacts.

131. **A just social transition strategy should be implemented** to mitigate the impact of change on working people and industry.

132. **Education and training for sustainable management and conservation of resources should be highlighted**, with a focus on workplaces.

133. **Workers, trade unions and employers should be engaged** in workplace actions and voluntary approaches for protecting the environment by building upon the 2006 OECD Labour/Management Programme business-trade union proposals.

Air pollution/atmosphere

Challenge 9
Reduce air pollution

134. **Atmospheric pollution should be tackled with industrial development policies** that emphasize government oversight, compliance and secure financial instruments.

135. **Sustainable mobility strategies should be set**, such as home-workplaces or "in mission" mobility plans, that provide good examples for cooperative and successful worker-employer initiatives.

136. **A comprehensive public transportation policy should be developed**.

137. **Air pollution policies should be linked to public, environmental and occupational health policies**.

138. **Synergy should be coordinated with the challenges** presented in the promotion of energy efficiency (see paras. 112-115 above).

Climate change

Challenge 10
Place climate change within a sustainable development framework

139. **Support must be provided for the United Nations Framework Convention on Climate Change and climate change must be placed in the context of sustainable development** by integrating poverty reduction, public and occupational health and environmental priorities to mitigation and adaptation.

140. **Research should be promoted on employment effects** of climate change through sector-by-sector and regional employment analyses.

Interlinkages and cross-cutting issues

141. **Commitments to sustainable production and consumption must be renewed**.

142. **Measurement of the environment social interface should be improved** through the use of indicators and mainstreaming gender equity into criteria for measuring progress.

143. **Universal access to health and health services should be promoted**. There should be a call for a global participatory strategy to eradicate HIV/AIDS, tuberculosis and malaria.

VII. Business and industry

144. Business regards energy for sustainable development, atmosphere/air pollution, climate change and industrial development as interwoven priorities that should be addressed in an integrated manner by Governments, business and civil society. Businesses contribute through operational activities, job creation, innovation, investments, capacity-building and the sharing of best practices.

145. Access to modern energy services is a key ingredient in poverty reduction and the provision of essential services, including education, food preservation, communications and health care. Currently, approximately 2.4 billion people do not have access to modern energy services and rely on traditional energy sources. Lack of access to energy hinders development (including the Millennium Development Goals), undermines economic growth and places a strain on the environment. Further, the Water, Energy, Health, Agriculture and Biodiversity strategy that emerged from the World Summit on Sustainable Development underlines the contribution of energy to many sustainable development objectives, including access to water, sanitation, health, agriculture and biodiversity.

146. Climate change affects all three pillars of sustainability. Responding to climate change should be considered in the broader context of a global need for access to affordable energy to meet growing demands, particularly in developing countries. With regard to industrial development, the challenge ahead is in supporting and promoting the growth of businesses worldwide and improving their economic, social and environmental performance.

147. The business community as a major provider, transporter and consumer of energy, is central to addressing the challenges of energy for sustainable development. It contributes investment and technological innovation in finding and implementing solutions to climate change mitigation and adaptation. Foreign investors and local companies are the main drivers of industrial development, a central component of economic activity and growth. Thus, business plays a critical role in those three areas.

148. This present document serves to highlight the role and recommendations of the business community in the five priority areas set out below.

Improving access and meeting growing demand: increasing supply and promoting energy efficiency

149. Maintaining and growing the energy supplies required to provide access to those lacking it and meet future demand, with reduced impacts on the environment, will require significant investment in the long term across the entire supply and use chain.

150. All energy sources should be assessed on their merits and relative attributes, recognizing that each faces issues, barriers and opportunities including cost, performance, safety, environmental impact, primary resource depletion and energy security. This will enable countries to address their particular energy needs in line with their respective resource bases and long-term development objectives.

151. Business supports energy efficiency to help reduce energy costs, energy consumption and negative environmental impacts, in particular climate change.

Energy efficiency also contributes to energy security by reducing energy demand and possible supply chain losses and extending resource life.

152. Business will continue to play a role in both demand and supply orientated policies and approaches. In order to promote and enhance energy efficiency, business supports the following actions:

(a) The establishment of energy efficiency programmes and partnerships through international cooperation;

(b) The adoption of energy efficiency strategies by Government, business and civil society in their own operation;

(c) The promotion and enhancement of energy efficiency along value chains;

(d) The provision of incentives for actions where the direct benefits of energy efficiency improvements are not gained.

153. At the same time, combining actions to improve access is key.

154. Funding agencies, including the World Bank and the International Finance Corporation, should continue developing energy efficiency projects for implementation, while United Nations organizations, including the United Nations Development Programme and the United Nations Environment Programme, should promote and extend such projects globally.

Enabling framework conditions

155. The business community can best contribute to addressing energy, climate change and industrial development challenges when enabling framework conditions are in place.

156. Governments and donor agencies should emphasize that access to financial resources goes hand-in-hand with good governance. They can do this by creating environments that are favourable to private investment, reducing investment risks and providing credit support through grants, loans and/or guarantees.

157. Key features of enabling frameworks include:

- Open markets
- Strong institutions and sound governance
- Risk management
- Protection of intellectual property
- Due diligence
- Rule of law and honouring contracts
- Cost-effective, consistent policies and regulations based on transparent, stable, economic and uniformly enforced regulatory systems.

158. These framework conditions will support energy investments, thereby contributing to energy access and security. In addition, sustainable industrial development will flourish if the private sector operates within the proper enabling framework conditions.

Investments and financing for sustainable development

159. Significant investment is required to maintain, grow and deliver the energy supplies required to meet future demand in a sustainable manner, to address climate change mitigation and adaptation, and to further sustainable industrial development. Business (as a major investor), other investors and Governments need to collaborate and work in partnership in order to promote energy access and meet the growing demand for energy.

160. Current prioritization and allocation of funds will influence technologies, infrastructures, and energy options for decades to come. Changes in energy systems happen slowly because of the large investment base and infrastructure, the long lead time and lifetime of installed fixtures, and the ongoing investments that are required to maintain and grow capacity.

161. Governments can promote and enable investments in energy for sustainable development by leveraging official development assistance, promoting technological cooperation and exploring innovative financing arrangements.

162. Additional financial resources to replace and expand energy infrastructures are imperative. Additional funds have to be sourced from donors, multilateral agencies and through foreign direct investment, particularly for developing countries.

163. Governments and donor agencies are urged to assist innovative partnerships (between local governments, the private sector and civil society) that use various sources of funding to jump-start and test shared-risk models. Donor agencies should also streamline the process of releasing official development assistance for relevant projects and initiatives.

Research, development and technology innovation

164. Business is investing resources towards technological advancement and the deployment of lower carbon, renewable and more efficient technologies. Developing and utilizing both existing and new energy technologies are critical to improve access to energy, promote energy efficiency and reduce greenhouse gas emissions.

165. Recognizing that ongoing technological innovation may provide solutions to current challenges, all energy sources should be considered as options to meet increasing energy demand.

166. Governments need to support business technological development and deployment activities by:

(a) Funding research and development activities directly (research centres) and indirectly (universities);

(b) Assisting in capacity-building initiatives by streamlining processes for international cooperation and participation;

(c) Supporting research and development and technology transfer across borders by lowering tariffs, maintaining strong intellectual property rights protection and establishing trade agreements;

(d) Providing a friendly environment for research and development by guaranteeing a workable effective patent system;

(e) Engaging major stakeholders in discussions on the advancement of innovation and new technologies.

Partnerships

167. Business believes that voluntary multi-stakeholder partnerships can address energy, climate change and industrial development challenges. Successful partnerships allow the strengths and areas of expertise of participants to be combined for practical and visible results.

168. The business community works with partners to identify, develop, commercialize and deploy technologies suited to individual national priorities, resource availability and development strategies. Business will continue to play an important role in finding solutions, within its sphere of responsibility, in partnership with other stakeholders. The value chains of large, medium and small companies in the context of industrial development provide many opportunities for alliances and partnerships to promote sustainability.

169. Governments need to continue to support partnerships by:

- Participating in partnerships and offering local expertise, financial resources and infrastructure;
- Establishing a regulatory environment that supports the formation of partnerships.

170. Governments, business and civil society need to partner to leverage resources to provide training, share knowledge and skills, share more sustainable energy technologies and cooperate to accelerate their dissemination.

VIII. Scientific and technological communities

Energy

171. Meeting the world's growing energy demands in a sustainable manner will require massive efforts to further develop and deploy a wide array of energy technologies, including technologies for energy efficiency and conservation, advanced renewable energy systems, clean coal and other fossil fuels, carbon sequestration technologies and secure nuclear energy systems. Decisions regarding the use of any given energy technology must be based upon thorough analyses of technological and economic feasibility as well as analyses of long-term sustainability and compatibility with goals for environmental protection, climate stability, social equity and personal health and safety.

172. There is no uniform solution for making sustainable energy available globally. The optimal energy mix for any particular location will depend upon the local natural resources base and socio-economic context. In some contexts, such as dispersed rural and island populations, decentralized electricity supply systems, based largely on advanced renewable technologies, will be most appropriate. In other contexts, such as rapidly developing countries with large urban populations, major centralized electricity supply systems will be needed. In general, a high priority must be placed on efforts aimed at optimizing energy conservation and

efficiency. In the transportation sector, urgently needed actions include diversification of engine fuels, increased use of low-emission vehicles and a strong emphasis on urban mass transit.

173. While strong public policies and economic incentives play a central role in promoting a transition to more sustainable energy systems, there is at the same time an ongoing need for vigorous research and development efforts aimed at bringing to market a new generation of clean technologies for heat, fuels and electricity. The needed research and development must encompass further development and optimization of existing technologies; basic research as a foundation for fundamental new technological advances; and social, economic, and ecological studies aimed at better understanding the drivers and impacts of energy systems. Such efforts must involve partnerships between government and the private sector, and significant international cooperation for sharing knowledge, technology and capital.

Air pollution/atmosphere

174. Air pollution, resulting from the emissions of power plants, transport vehicles, industrial processes and biomass burning, remains a serious and, in many places growing, threat to human health and to the agricultural and natural ecological systems upon which life depends. Effective air quality management requires that all nations maintain a strong scientific and technical foundation for assessing air quality status and impacts, for setting emission standards and ambient air quality objectives and for designing and implementing pollution control strategies and technologies.

175. As the impacts of air pollution emissions can reach well beyond national boundaries, there is an inherent motivation for strong international cooperation in addressing this issue. A high priority should be placed upon sharing cutting-edge observational and modelling tools and pollution prevention and control technologies among all nations.

Climate change

176. The broad international scientific consensus on climate change is documented in the reports of the Intergovernmental Panel on Climate Change. The Panel's fourth assessment report (2007) will provide comprehensive and up-to-date information, including on possible response measures to climate change and its impacts, based on the latest scientific, technical and socio-economic literature.

177. Urgent action is needed to reduce greenhouse gas emissions in order to mitigate future climate change impacts. At the same time, as climate change is already occurring, action is needed by all countries to design and implement strategies to adapt to the consequences of climate change and to limit its socio-economic costs for societies worldwide, but particularly for the most vulnerable regions, nations and socio-economic groups. Participation of a broad range of stakeholder groups, with the scientific and technological community assuming fully its role, will be essential in this undertaking.

178. Action is also critical in the domain of science. We must continue to improve our understanding of the climate and the Earth system, to refine our predictive tools and reduce uncertainties in projections of future climate and its impacts, particularly at the regional level. In this respect, important priorities during the coming years are:

(a) Countries must enhance support for long-term observations of the Earth and climate system, thus enabling the global environmental observing systems, including the Global Climate Observing System, to become fully operational, and the Global Earth Observation System of Systems to be implemented;

(b) Countries must vigorously pursue climate-change-related research, notably through the World Climate Research Programme and related global environmental change research programmes;

(c) National and international research funding agencies must support interdisciplinary research, involving natural, social and economic sciences, aimed at a better identification and understanding of coupled environmental and socio-economic impacts and vulnerabilities and at increasing the knowledge and technology needed for preparing climate change adaptation strategies.

Education, training and scientific and technological institutional capacity-building

179. Strong national, regional and international scientific and technological systems are required to address the challenges of developing sustainable energy systems, mitigating and adapting to climate change, reducing atmospheric pollution and promoting a sustainable path to industrial development. Nothing less than a massive effort will be needed in order to build the needed critical mass of scientific, engineering and technological capacity in all regions of the world.

180. The North-South gap in scientific and technological capacity continues to widen. There is a need for much greater investment within developing countries for higher education and training, and for building the scientific, engineering and technical skills and infrastructure (for example, research institutions, laboratories and adequate equipment) needed to develop, adapt, apply and maintain on an ongoing basis the technologies that are specific to their needs. Bilateral donors and international funding mechanisms should include scientific and technological capacity-building among their priority areas. South-South cooperation between countries and regions must also be given increased attention as an effective and cost-efficient means of capacity-building.

181. Detailed needs in scientific and technological capacity-building related to climate change have been drawn up by the Subsidiary Body of Scientific and Technological Advice to the United Nations Framework Convention on Climate Change. Governments should enhance support for implementing those actions. Likewise, the United Nations Decade on Education for Sustainable Development (2005-2014) should be used by Governments and all major groups as an instrument for enhancing education focused on climate change, energy and air pollution issues in a context of sustainable development.

IX. Farmers

Agriculture and climate change

182. Agriculture is at the same time a sector which experiences the effects of climate change and which has a huge potential to provide answers to mitigating and adapting to its effects. The role of agriculture and farmers' organizations is important and must thus be documented and recognized.

183. Costs associated with climate change adaptation and mitigation represents a burden for farmers. They must be shared by all stakeholders.

National policies: decoupling economic development from environmental degradation

184. Farmers' organizations must be involved in climate change decision-making processes through specific follow-up multi-stakeholder commissions.

185. National Governments should initiate policy reform. In particular:

(a) They should ensure that the creation of carbon credits established by a change of agricultural practices are attributed and paid to the farmer. This would provide them with an alternative source of income while promoting good agricultural practices;

(b) They should mainstream agricultural and climate change policies into broader frameworks and other planning sectors, such as energy. They should also ensure consistency with other government sector policies;

(c) Internalizing climate vulnerability into agricultural policies is necessary. Setting up a clear national strategy and budgeting predicted financial losses incurred by climatic events that will impact food security are needed. Consultations with farmers will provide foresight into their needs and will facilitate the implementation of remedial programmes;

(d) The needs of rural areas, in particular in developing countries, must be addressed along with the promotion of gender equality. Poor farmers need to diversify their insurance sources to financially safeguard them from climate-induced catastrophes through international catastrophe bonds, weather insurance contracts and crop insurance guarantee fund schemes.

Supporting initiatives driven by farmers

186. Farmers need support in their efforts to mitigate and adapt to the effects of climate change through sustainable farm management practices, such as conservation agriculture, crop rotation and integrated pest management. The challenge for farmers is to document them and to highlight key areas of action.

Partnerships between farmers and researchers

187. Regional studies on the potential impacts of climate change on agriculture, farm specific climate change information, farmer training programmes to identify and scale up best practices, research projects addressing energy harnessing techniques on the farm and technologies related to early warning systems, are needed.

International mobilization

188. Climate-change-related measures should be integrated into the agendas of development agencies and poverty reduction strategies.

189. Despite existing financial mechanisms, improvements are needed. In particular:

(a) Farmers' organizations should have direct access to funds of the United Nations Framework Convention on Climate Change;

(b) The Least Developed Countries Fund should serve farmers as a finance mechanism for adaptation issues;

(c) Existing funds for other multilateral environmental agreements should serve for mitigation and adaptation efforts;

(d) The Clean Development Mechanism could offer additional incentives for opportunities for energy technology transfer.

Agriculture and sustainable energy

190. The increased utilization of renewable energy will have a significant impact on agriculture. This is an issue of policies by Governments, institutions and organizations. A stable investment environment is necessary to develop such potential.

191. Farmers want to become providers of value-added products instead of producers of raw materials and buyers of energy. Therefore, farmers' ownership is key and must be facilitated to ensure improvement of their income and to avoid all the benefits going to large bioenergy industries.

The role of Governments

192. To expand sustainable energy production in agriculture, Governments need forward-looking policies, including the following priorities for farmers:

(a) Making the cost of sustainable energy technologies competitive;

(b) Providing access to the necessary capital;

(c) Minimizing risks.

Mainstreaming energy policies

193. Governments must incorporate the goals of sustainable development into all policies. Energy affects many economic sectors (rural and agricultural development and land-use planning, among others).

Enabling environments

194. Government bioenergy-related policies and regulations should reflect the farmers' interests in rural areas.

195. Management models aimed at reducing production costs, while stimulating environment friendly practices, must be promoted.

Whole value chain strategy supporting farmers

196. Farmers need a strategy which encompasses tax incentives to encourage investment, incentives for processing facilities, development of quality standards and direct marketing of bioenergy to consumers. Partnerships with stakeholders are needed, including retailers, financial institutions and cooperatives, to encourage primary producer investment and ownership, and with the business sector for technical support for the improvement of producers' business skills, and with research institutions to develop cost-effective, new processing technologies and suitable energy-specific crop varieties.

Competitive domestic feedstock

197. A competitive policy for commodities and energy feedstock is needed to create gains for local farmers.

Support for research and development

198. Small-scale technology for bioenergy is needed for farmers. Diversification of the possible sources of bioenergy is needed through strong primary research on new energy crops, new energy-specific varieties of existing crops, increased production efficiency, improved processing techniques and crops that yield both high energy content and high quality by-products.

Appropriate incentive mechanisms for farmers' investment

199. Bioenergy support systems have been implemented across countries, including tax exemptions, duty rebates and capital allowances.

200. The most appropriate mechanisms to ensure benefit for farmers should be identified. They should include measures to improve market access of farmers and the financing of biofuel plants to increase their participation, address regulatory issues, reduce business risks for farmers for the commercialization of new technologies and establish carbon accreditation to reward farmers.

Database and information sharing

201. Standardized databases and websites are needed to enable investors and farmers to exchange information and negotiate projects.

Participatory frameworks

202. Before designing any instruments for bioenergy development, a thorough and coordinated diagnosis of the situation is needed through a stakeholder commission.

Farmers' organizations and extension services

203. Farmers' organizations have a part to play in providing extension services and technology transfer to their constituents in the form of training support on bioenergy production, information sessions as well as the provision of local agricultural advisers and identification of specialized advisory services.

204. Income opportunities for farmers could result from the high level of attention being focused on the development of bioenergies. If farmers are to benefit from that development, it will be necessary to carry out careful analysis and planning before pursuing bioenergy programmes. The potential for bioenergy to provide a better alternative to fossil fuels, with environmental benefits and economic opportunities for farmers, is a good reason to work out sound strategies with all stakeholders.